Gaspee Street Bridge
Spanning Gaspee Street at west end of
Providence Union Station Viaduct
Providence
Providence County
Rhode Island

HAER No. RI-32

HAER
RI,
4-PROV,
186-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Mid-Atlantic Region, National Park Service
Department of the Interior
Philadelphia, Pennsylvania 19106

HAER
RI,
4-PROV,
186-

HISTORIC AMERICAN ENGINEERING RECORD

Gaspee Street Bridge

HAER No. RI-32

Location: Gaspee Street at west end of Providence Union Station viaduct, Providence, Rhode Island.

Date of Construction: 1894

Present Owner: Amtrak

Present Use: Railroad bridge

Significance: The bridge is historically significant as part of the station viaduct which contributed to the regional transportaton network. Unique construction techniques make the structure significant for its engineering.

The elevated rail line consists of four bridges over the three streets and the Woonasquatucket River. The Gaspee and the Promenade Street bridges are similar structures of box plate girder construction, approximately 250 feet long and 70 feet wide. Both were built to carry twelve tracks, but the actual number of tracks has varied over the years since their construction. Each bridge is three spans long, supported by rows of built-up steel columns with channels, angles, and lacing, which give a latticework appearance. Since the bridges cross the streets at a slight angle, the two end girders are skewed, or fascia, girders (Engineer News, 1897, 59).

The width of the Gaspee and Promenade Street bridges with their level top surfaces presented some difficulites in accommodating water runoff. The resulting design was a solid iron floor with a corrugated surface that allowed water to run off at the ends and flow into gutters. Although this concept had been used before, the particular shape of the surface was an innovation. The bridge girder arrangement required that the floor troughs be eight feet long and supported at each end. To support the assumed load required a series of troughs about ten inches in depth (Engineering News 1894, 69-70). At the time, the available rolled troughs with a tight bottom were only six inches deep. The newly patented design alleviated many problems inherent in previous form (Engineering News 1894, 401) and allowed the water to be effectively collected in troughs that discharged into gutter and downspout. George B. Francis, Resident Engineer, and E. P. Dawley, Division Engineer, were responsible for the design of the flooring. The contractor for the ironwork was the Berlin Iron Company of East Berlin, Connecticut. Promenade Street Bridge carries both the mainline Northeast Corridor tracks and the tracks leading to the East Side Tunnel. Decorative ironwork such as that on the fencing is often overlooked by passersby on Promenade Street because of the shadow created by the bridge.